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ABSTRACT

To determine how comprehension of the Kuder General Interest Survey (KGIS) was affected by alternate modes of inventory administration and reading levels of eighth grade students (as determined by the California Tests of Basic Skills vocabulary scores), 153 students were randomly assigned to one of three treatment groups--standard administration, administration with glossary, or auditory administration. Through a two-factor analysis of variance in a three by two factorial design, data was analyzed to determine whether reading level and mode of administration, and the interaction of the two, had a significant effect on eighth graders' comprehension of the KGIS. The findings indicated that treatment mode did not affect the students' comprehension although their reading level did have a significant effect on it. High readers performed better than low readers on the self-designed vocabulary test in all three treatment groups. The interaction of the two did not have a significant effect on the students' comprehension of the KGIS. (Author)

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A STUDY OF TWO FACTORS AND THEIR EFFECTS ON THE COMPREHENSION OF THE KUDER GENERAL INTEREST SURVEY

A THESIS

Presented to the School of Education

California State University, Long Beach

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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A STUDY OF TWO FACTORS AND THEIR EFFECTS

ON THE COMPREHENSION OF THE KUDER

GENERAL INTEREST SURVEY

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Chapter 1

THE PROBLEM

Background of the Problem

High school counselors are increasingly cognizant of the need to assist teenagers in gaining self-understanding and accurate career information in order that they become equipped to make well-deliberated decisions. Many counselors recognize this assistance as a contribution to one's career development since they view career development not as an event, but as a process which begins very early in a child's development and continues throughout one's life. It follows, then, that choices or decisions are made during the entire process. In order to make sound, effective decisions, it is helpful and necessary that an individual gain information about himself/herself which includes values, aptitudes, goals, needs, and interests (both conscious and unconscious). Self-knowledge, in turn, may provide a useful base from which an individual can plan for the future, whether it be through occupational training programs or further educational pursuits.

Theories of occupational choice suggest that interests play an important role (in achievement) in

vocational exploration and decision-making (Holland, 1966; Super, 1957). One of the more familiar tools which has been traditionally employed to assess and evaluate interests is the interest inventory, the design and utility of which is rooted in varied theoretical and empirical bases.

Historically, interest inventories have been viewed as a source of information input at the time of career choice decisions (Prediger, 1974). Career choice, in previous decades, was viewed as an "event" occurring at a single point in time. Thus, students who had to select a college major or decide on a job typically sought a counselor, took an interest inventory, and attempted to make the decision. The inventory was designed to assist such a choice at a pressing decision point. Today the prevailing view of career guidance, as previously discussed, is distinctly different; while it may have been sufficient in the past to use career guidance tools, such as the interest inventory, to match people with jobs, it is considered at present more appropriate and desirable to use them in facilitating self-knowledge in relation to careers and to stimulate career exploration in a variety of occupational areas (Cole & Hanson, 1974).

The interest inventory can be particularly helpful for the adolescent. During adolescence, self-concepts are

In the mid-twenties, Schauffler (1927, p. 136) wrote:

> A study may be clear, definite, accurate and brief and yet be dull reading and on that account, may be of little value for classroom purposes. It is not enough that materials be presented clearly and directly, it must also be presented in a manner interesting and understandable to the group that is to use it.

Later, in a comprehensive treatment of occupational information published in 1946, Schartle (p. 76) expressed the belief, "While information must be carefully checked for accuracy, it must also be arranged and written in a style that is readable and easy to use." So, while this issue has been talked about in the past, it is also an assumption that is implicit in the construction of interest inventories today (Kuder, 1977; Zytowski, 1973).

A widely used interest inventory, and the one chosen for this study because of this use, is the Kuder E General Interest Survey (KGIS). This inventory was developed in response to the need for interest inventories with simpler language (Kuder, 1971). For example, occupational titles and vocabulary have been kept to the sixth grade level.

If we accept the premise that the purpose of the occupational interest inventory is to help teen-agers discover the occupation they will find most satisfying, then it follows that it must be suitable for use with

teen-agers. It must be at appropriate reading levels for those individuals that use it; otherwise, such extraneous factors as reading errors can invalidate findings. Furthermore, exposure of the student to reading materials beyond his/her ability to comprehend may make him/her antagonistic to and frustrated by the whole counseling process. Thus, this exercise would defeat the objective of any vocational information service.

Even though the KGIS claims that "the language is simple," the question still remains whether the inventory is appropriate for the students who use it. Interest inventories are constructed for the "average" student at a particular grade, a statistical abstraction. As any observer knows, secondary students today differ widely in reading ability. In the typical eighth grade class, one is likely to find a range of eight or more grades in reading ability; some students are reading at less than fifth grade level and others at the college level. How well suited is this inventory for such extremes?

An area of concern in our society today, and for the past decade, has been the problems faced by disadvantaged groups. By "disadvantaged" the author is referring to those students not able to succeed in typical high school programs, such as those who cannot read and write adequately, not to other definitions commonly used, such

as ethnic minorities or the poorest socioeconomic groups. In January, 1977, the National Assessment of Educational Progress released statistics that indicated that 13 percent of 17-year-old students taking a test were functionally illiterate, that is, they could barely read or write (U.S. News and World Report, 1977). In light of these statistics, many special reading programs have been instituted, based on the democratic ideal that every child, youth, and adult should have experience and education suited to his/her needs and abilities. Still, little has been done to make the interest inventory more comprehensible to younger students and to those with low reading levels.

Purpose of the Study

This study was designed to generate data which would assist in determining the effects on comprehension of alternate modes of administration of the Kuder General Interest Survey (KGIS) (Kuder, 1971) and reading levels of eighth grade students of a five-year high school in Southern California.

Importance of the Study

Some research has supported the contention that interest inventories can predict career choice, persistence, and satisfaction in these careers, and can also be

useful instruments for career exploration. The readability level of the interest inventories has also been explored. However, little has been accomplished to improve the existing inventories to make them more understandable and useful. Results from this study may help determine the efficacy of alternate modes of administration, a procedure which may be readily and inexpensively implemented.

Dolliver (1969) points out that of those students seeking counseling, most are seeking vocational guidance. As demand and need increases, research in the development and validation of materials better fitting the needs of students and counselors is sorely needed.

Questions to be Answered

This study sought to answer the following major questions:

1. To what extent does comprehension of the KGIS, as measured by the self-designed vocabulary test scores, differ among the three treatment groups: standard administration, administration with glossary, and auditory administration?

2. To what extent does the eighth graders' reading levels, determined from the California Tests of Basic Skills (CTBS) vocabulary tests, affect their comprehension of the KGIS, as measured by the self-designed vocabulary test scores?

3. To what extent does the mode of administration of the KGIS--either standard administration, administration with glossary, or auditory administration--affect the eighth graders' comprehension of it, as measured by the self-designed vocabulary test scores?

4. To what extent does the mode of administration --either standard administration, administration with glossary, or auditory administration--and the eighth graders' reading levels, determined from the CTBS vocabulary tests, affect their comprehension of the KGIS as measured by the self-designed vocabulary test scores?

5. Is there a significant relationship between the eighth graders' reading levels, determined from the CTBS vocabulary tests, and comprehension of the KGIS, as measured by the self-designed vocabulary test scores?

Hypotheses

The following research hypotheses were tested:

1. Comprehension of the KGIS, as measured by the self-designed vocabulary test scores, differs significantly among the three treatment groups: standard administration, administration with glossary, and auditory administration.

2. The eighth graders' reading levels, determined from the CTBS vocabulary tests, have an effect on their comprehension of the KGIS, as measured by the self-designed

vocabulary test scores.

3. The mode of administration of the KGIS--either standard administration, administration with glossary, or auditory administration--has an effect on the eighth graders' comprehension of it as measured by the self-designed vocabulary test scores.

4. The mode of administration of the KGIS--either standard administration, administration with glossary, or auditory administration--and the eighth graders' reading levels, determined from the CTBS vocabulary tests, have an effect on their comprehension of the KGIS, as measured by the self-designed vocabulary test scores.

5. Overall, there is no significant statistical relationship between the eighth graders' comprehension of the KGIS, as measured by the vocabulary test scores and their reading levels, determined from the CTBS vocabulary tests.

Conceptual Assumptions

The following conceptual assumptions were implicit in the investigation:

1. Career development is a lifelong process which begins in early childhood; occupational decisions are steps in that development.

2. Reading comprehension is necessary for interest

inventories to be valid instruments.

3. The students employed in this investigation had reached a level of vocational maturity sufficient to benefit from the career exploration methods utilized.

Definition of Terms

For the purpose of clarity, the following definitions are used:

Interest Inventory

A measure on which an individual indicates likes, dislikes, and preferences; the one used in this study was the KGIS.

Readability Formula

Objective method of determining the reading level of printed materials.

Reading Comprehension

The level of understanding at which an individual knows what is being communicated and can use this knowledge in a limited way. Operationally defined, this refers to scores measured on the self-designed vocabulary test.

Reading Level

A normative statement of an individual's progress in reading. Operationally defined, this refers to scores obtained from the California Test of Basic Skills (CTBS)

vocabulary test.

Standard Administration

Refers to the administration of the KGIS in the traditional manner; the inventory is distributed to each student in a group situation and he/she is directed to take it individually through silent reading.

Administration with Glossary

Refers to the administration of the KGIS in the traditional manner with one modification, the addition of a glossary, designed to aid comprehension.

Auditory Administration

Refers to an administration of the KGIS through the use of a tape recorder. The tape recorder serves as a reinforcer, while students read the inventory silently in the traditional manner. Both listening, defined as a process of comprehending spoken language, and vision are employed by the students while taking the inventories.

Delimitations

The present study was subject to the following delimitations which served to narrow its focus and generalizability:

1. Testing and treatment procedures were carried out by one person, the author of this present study.

2. The sample of students involved in the study were from the eighth grade, attending one school in a Southern Californian middle socioeconomic community.

3. Subjects ranged in age from 13 to 15 years.

Organization of the Remainder of the Study

Chapter 2 presents a delineation of the theoretical framework upon which the present study rested, and a review of pertinent literature related to the theoretical framework.

Chapter 3 sets forth the methodology of the study including: (a) research design, (b) subjects, (c) treatment procedures, (d) description of instruments, (3) statistical treatment of data, (f) methodological assumptions, and (g) limitations of the investigation.

Chapter 4 describes the findings of the study and offers a discussion of the results.

Chapter 5 presents a summary of the findings, conclusions, and recommendations.

Chapter 2

REVIEW OF THE LITERATURE

Introduction

A review of the literature indicates that there have not been any prior studies on the effects of alternate modes of administration on the comprehension of interest inventories. Therefore, in order to validate the present research, a chapter presenting the rationale for this study was deemed necessary. This chapter is organized into five developmental sections upon which the theoretical and experimental framework of the investigation rest.

Purpose and Role of Interest Inventories

Much research has indicated that inventoried interests are valid predictors of career choice. However, there are those that question this conclusion and feel that expressed interests may be equally valid predictors of career choice. The question of determining the best method for assessing interests--inventoried or expressed--then arises. Before beginning this discussion, it is important to more clearly define "expressed" and

"inventoried" as used in the context of this paper.

Super (1949) clarified the distinction between several types of occupational interests by referring to all the different terms used in earlier studies (terms such as claimed, stated, professed, designated, and specified) as "expressed interests." Expressed interests became known as verbalized career preferences determined from an individual's values, goals, motivations, self-concept, and knowledge of the world of work (Darley & Hagenah, 1966; Dolliver & Will, 1977). There appeared to be little confusion with the use of the term "inventoried" interest; these are interests assessed through the use of lists of activities or occupations for which an individual indicates preferences. The KGIS, used in this study, is an example of an instrument for assessing inventoried interests.

Many studies comparing expressed and inventoried methods have favored the inventoried interests and their results (Craven, 1961; Darley & Hagenah, 1966; Nunnally, 1959; Sinnett, 1955; Strong, 1943). Darley and Hagenah (1966, p. 75) described the differences between the two:

> . . . claimed interests have somewhat less permanence than measured interests; claimed interests emerge from different causal factors --factors more associated with prestige, family pressures, aspirational levels, transient considerations and misconceptions of the world of work--than do measured interests.

Jim C. Nunnally (1959, p. 316) cited evidence to show that

stated preferences for occupations are unrealistic, particularly among adolescents and young adults. "Young people," he maintained, "are usually quite unaware of the specific activities entailed in different occupations; the individually stated preferences for occupations are often prompted by glamorized stereotypes."

Dolliver (1969) disagreed with their descriptions. In his extensive review of the literature concerning inventoried and expressed interests, he concluded that the bulk of the research in this area was based on erroneous assumptions about the nature and value of expressed interests and inflated notions of inventoried measurement. His criticisms originated from a 1968 work by Holland and Lutz who observed that when disagreement in results between inventoried and expressed interests existed, researchers tended to depreciate expressed interests. In Dolliver's words (1969, p. 96):

> When expressed interests agree with the Strong Vocational Interest Survey (SVIB), the expressed interests have been accorded the status of criteria. When high scores are received on the SVIB for occupations which are not expressed as interests, this has been viewed as evidence that the SVIB can identify actual occupational interests of which the subject is unaware. When there is an expression of interest in occupations for which low scores are received on the SVIB, it has been seen as evidence that the SVIB can indicate the presence of errors in the subjects thinking about his vocational interests.

Dolliver found this bias present in the works

of many researchers such as Craven (1961), Darley and Hagenah (1966), Nunnally (1959), Sinnett (1955), and Strong (1943). Each used inventoried interests as the standard from which to judge the effectiveness of expressed interests. Strong (1943, p. 356) wrote:

> From the positive results of validity studies done with interest tests, many psychologists would accept these tests as valid measures of individuals' interests. Further, agreement between measured and expressed interests can be hypothesized as one measure of the realism of individuals stated interests: if agreement is high, subjects have realistic interests; if it is low, their interests are unrealistic.

Sinnett (1955, p. 111) wrote:

> The earlier a person acquires a realistic perception of a given job, the more likely his expressed interests will resemble his measured interests. Restated, if a person is familiar with the demands of a job, he will be more likely to have realistic interests.

It is evident that differences exist among researchers. Yet there are many researchers and reviewers that have taken a middle position suggesting that appropriateness of both inventoried and expressed interests may be most desirable in the career guidance process (Darley & Hagenah, 1966). Craven (1961, p. 11) wrote that "measured interests usually tap only affective responses--likes and dislikes and preferences. Expressed interests may have the same affective components, but they also represent conscious efforts to integrate pressures, needs, hopes and aspirations . . . ." Craven has adequately described some

differences between the two, both of which can be employed to provide useful information to individuals when engaged in the process of self and career exploration.

Many studies of inventoried interests suggest that interests are useful predictors of occupational success and satisfaction. While some research results have been inconsistent (Madaus & O'Hara, 1967; Shann, 1972), it seems that interest inventories generally do predict career choice, persistence and satisfaction in a job (Cronbach, 1970; Zytowski, 1973). However, less evidence is available as to whether they predict job success (Crites, 1969).

Regardless of whether conclusive empirical support for the predictive value of interest measurement can be established, such measurements are important components in the currently favored model of career guidance which stresses the maximization of the client's understanding of himself and career exploration (Cole & Hanson, 1974; Crites, 1969; Cronbach, 1970; Ginzberg, 1971). Cronbach lists many practical reasons why interest inventories are well adapted to vocational counseling, chief among these being that since students generally do not see anything mystical or threatening in interest "tests," the scores derived from these inventories provide a useful beginning point for individual counseling. Cole and Hanson (1974) see the tools useful in stimulating career exploration and

thereby providing information which would help clients identify occupational alternatives satisfying to them and thus broaden their options.

Readability of Interest Inventories

The interest inventory is an ineffectual instrument for stimulating career exploration if it is incomprehensible to the population using it. One of the factors used to determine its appropriateness for a particular population is its readability level. The review of the literature indicates very little research has been done on the readability of interest inventories, particularly the KGIS.

Winifred Coomb (1946) conducted a study with the intention to determine whether students could understand the terminology of the Kuder Preference Record (KPR). She found that high school sophomores understood words better than freshmen, and concluded that, for many students, the KPR did not give valid results because of the great many words not understood.

Roeber's conclusion was similar to Coomb's although his approach differed. In 1948, he compared the word usage of seven interest inventories, computing the percentage of difficult words. He found a large number of words beyond the understanding of ninth graders, and therefore recommended that a glossary of terms be constructed to accompany

an inventory. Stefflre (1947) and Johnson and Bond (1950) calculated levels of reading proficiency required for a variety of interest inventories with the prupose of providing the information to counselors. Stefflre calculated levels for six inventories, including the KPR, using the Flesch formula. Johnson and Bond, also using the Flesch formula, calculated the reading ease of nine standardized tests commonly used in VA advisement centers. The general conclusion was that many tests were administered to people who did not understand them because the readability levels were too difficult. Based on that observation, Johnson and Bond made the following recommendations: (1) counselors should reevaluate their past and present practices regarding inventory selection, administration and interpretation, (2) counselors should not assume that students will necessarily comprehend the contents of the inventory just because they were able to comprehend the directions, and (3) there is a need for an interest inventory with a reading comprehension level suitable for junior high school students and the general population. As early as 1950 the need for an inventory suitable for younger students was recognized.

Geist and McDaniel (1952) acknowledged the problem associated with many of the interest inventories and sought to overcome semantic difficulties commonly associated with

verbal tests by designing a picture interest inventory, known as the Geist Picture Interest Inventory. Kuder also recognized and responded to this need years later when he constructed the KGIS for the younger student. The readability formula used to assess the reading difficulty of the KGIS was the SRA Reading-Ease calculator which showed that the items were appropriate for readers at the sixth to eighth grade level. As previously mentioned, earlier studies (Johnson & Bond, 1950; Stefflre, 1947) used the Flesch formula to assess the readability of other interest inventories. However, the Flesch formula was primarily designed to assess the readability of reading materials--not standardized tests or interest inventories.

Forbes and Cottler (1953) claimed that formulas such as the Flesch are too simple and limited for the purpose of assessing readability of standardized tests. They conducted a study to determine, using various readability formulas, the reading difficulty of standardized tests commonly used in counseling, and went on beyond this to develop a new and simplified method for determining reading levels of standardized tests. This formula was used by the investigator of this study to assess the readability of the KGIS. The formula indicated that the KGIS has a readability level of 8.0--not 6.0--as proclaimed in the manual (Kuder, 1971).

Kuder (1971) realized the limitations of the KGIS and consequently recommended that it not be used indiscriminately with sixth graders; only students mature enough to attain acceptable Verification (V) scores were to be candidates. Kuder's recommendation was based on the findings of a study presented in the inventory manual. Of the 527 boys and 463 girls in the sixth grade norm groups taking the KGIS, 21% of the boys and 11% of the girls made unacceptable V scores (15+). Since the V score provides an indication of the degree of sincerity and carefulness in following directions, there were four possible explanations for the students' high scores. The one explanation most relevant to this study was that the students did not understand the language of the KGIS and thus were likely to mark the responses at random.

Evidence supporting the use of the inventory with average and above average sixth grade students was found in a study by Tinninghast, Shapiro and Garrett (1969). They sought to demonstrate that a reasonable proportion of sixth grade pupils of average and above average academic ability could earn acceptable V scores on the inventory. The sample was composed of 251 students whose reading scores ranged from 2.2 to 9.9, with a median grade-equivalent of 5.9. It was found that only four pupils of the 251 had unacceptable V scores of 15 or higher. Tillinghast,

Shapiro and Garrett (1969) therefore assumed that the students were able to comprehend the inventory.

Even though the above study supports the use of the KGIS with sixth graders, one study is not enough to validate its indiscriminate use. As evident by the research on the readability of interest inventories, this topic was discussed more in the late 40's and early 50's than it is today. Today little research is being conducted, and what has been done reveals conflicting data on the appropriateness of the KGIS for sixth grade students. It seems important, then, that much more research needs to be pursued to investigate KGIS appropriateness for younger populations.

Reading Comprehension

Reading comprehension is necessary for interest inventories to be valid instruments (Kuder, 1977; Zytowski, 1973). Since this is assumed in most standardized interest inventories, it is helpful to examine more critically the components involved in the reading process so that one can better understand how any reading material is utilized.

Over the years, reading comprehension has been explored and explained from various perspectives. In the attempt to define reading comprehension, some have stressed process while others have focused on the skills of reading;

some have concentrated on the meaningful interpretation of printed materials, while others have focused on the process of decoding.

There are also disagreements among those researchers who have focused on the process of reading. Among them, one group (Hochberg, 1965; Levin, 1965; Rubenstein, Lewis, & Rubenstein, 1971) asserts that reading is primarily an auditory process--that is, printed words are transformed into a speech-based code. Rubenstein, Lewis and Rubenstein (1971) postulated a "speech encoding hypothesis" which claimed that recognition of printed words involves converting a visual representation of the word into speech codes and the latter provides access to lexical memory. Levin (1965) proposed that written text is speech made visible. His theory about the production of text is inverted to provide a theory about the reception of text, also known as reading. The "printed" word is allegedly transformed into a heard word or some early central representation of a heard word. The reading process is then carried on by whatever mechanisms are used to process heard speech.

Related work by Hochberg (1965) asserted that visual text is not transposed into an auditory surrogate, but rather it is transformed into subvocal speech so that the reader understands what he is reading either by hearing

himself or feeling himself reading it aloud.

A contrasting hypothesis is the "grapheme-encoding hypothesis" proposed by Bower (1970), Kleiman (1975), and Kolers (1970). They asserted that reading is primarily a visual process rather than au auditory one. The hypothesis states that a printed word is recognized directly from a visual representation used to locate stored information about the meaning of the words.

In an effort to come to some agreement, Baron (1973) and La Berge (1972) sought to integrate the two approaches, and claimed that lexical meaning can be assessed through both visual and phonological representations of a printed word in parallel.

As evident, there is no agreement among researchers in whether reading comprehension is primarily auditory, visual, or both. Whether it involves one or both processes does not matter, for, in the words of Gibson and Levin (1975, p. 454):

> No single model will serve to describe the reading process, because there are as many reading processes as there are people who read, things to be read, and goals to be served. Reading is as varied and adaptive an activity as perceiving, remembering, or thinking since in fact it includes all these activities.

In addition to those who have emphasized processes are those who have emphasized the skills approach to reading. Several researchers have proposed comprehension models emphasizing skills. The most detailed model was

that proposed by Gray (1960) and later updated and amplified by Robinson (cited in Gray, 1960). Gray's model attended to the process of reading, but primarily it was a catalogue of skills required for various aspects of reading. He classified the skills under four headings: (a) word perception, including pronunciation and meaning, (b) comprehension, defined as a clear grasp of what is read, (c) reaction to and evaluation of the author's ideas, and (d) assimilation of what is read through fusion of old ideas and information obtained through reading.

He claimed that without word perception, communication cannot occur. He defined comprehension further to include three levels of understanding. The first was "literal comprehension," which involves a "clear grasp of what is read." The second level was determining implied meanings, and the third focused on the implication and significance of the author's ideas beyond those things actually stated. He further qualified the third skill and called it "critical readiness," which involves an inquiring attitude, standards of judgment, reaching conclusions, and emotional responses to content. The fourth skill, assimilation, is achieved through exercise of critical judgment, creative thinking, and combining information secured from reading with one's previous experiences.

Robinson (cited in Gray, 1960), in a thoughtful analysis of Gray's work, retained and modified the four major skills Gray had proposed and added one more: speed of reading. She claimed that this was a flexible skill determined and adjusted by the reader's purpose and difficulty of reading materials.

Theodroe Clymer (1968) proposed four skills of reading: (a) decoding, (b) grasping author's meaning, (c) testing and recombining the author's message with the understanding and background of reader, and (d) application of ideas and values to decisions and actions and extension of author's ideas to new setting. Many of these goals are incorporated in the Gray-Robinson model. "Decoding" is similar to word perception. "Grasping author's meaning" is similar to literal comprehension. "Testing and recombining the author's message with the understanding and background of reader" is similar to the higher level comprehension skills and reaction described by Robinson and Gray. "Application of ideas and values to decisions and actions and extension of author's ideas to new setting" is essentially the same as assimilation.

In order to benefit the fullest from the results of an inventory, an individual must have acquired the four reading skills described by Clymer, Robinson, and Gray. Not all four skills are necessary, however, for one to

comprehend the contents of the KGIS. Only the first two, "word perception" and "literal comprehension" need to be acquired in order that the individual be able to recognize the words and associate meanings with them. Once these skills have been acquired, an individual can attempt to develop the others. Ultimately, if one is able to assimilate the information read and relate it to self and experiences, he/she will gain more from the tool used for career exploration.

Alternate Presentations and Their Effects on Comprehension

In order to justify the various administrations of the KGIS, it is first necessary to understand what, in fact, each of the modes was attempting to accomplish. Many students are unable to acquire "functional" reading ability because of their inability to decode the word on the printed page. Decoding skills are important to consider because they form the stepping stone on which development and growth in the reading process depend. When an individual cannot recognize a word, there are three possibilities (Harris & Sipay, 1977): (1) the individual may not know how to pronounce the word, (2) the individual may not know the meaning of the word, and (3) the individual knows neither the meaning nor the pronunciation of the word.

In the first treatment of this study with standard administration, it was assumed that those who took the inventory had decoding skills and thus were able to recognize and understand the words and phrases printed. Decoding occurs through use of auditory and visual processes, though one mode may predominate in any given reader.

The second treatment, administration with a glossary, was an attempt to alleviate some of the reading problems associated with decoding. The aim was to aid those who had less skill with recollecting word meanings. However, it still required the reader's ability to pronounce words.

The glossary was constructed with the intention to aid those who lacked one aspect of the decoding skills--word meaning. Thus, when designing the glossary, factors influencing decoding were considered. The factor consistently and repeatedly shown to enhance ease of decoding words was word usage frequency. Frequency is usually measured objectively by a word count through magazines or newspapers. A well known word count is the Thorndike-Lorge count (1944) which was used in this study to determine the words of the KGIS not frequently used, and thus the words for the glossary. Eleanor Gibson (Gibson & Levin, 1975), a noted researcher on reading, claimed that

it is fairly safe to generalize that frequency, determined by the above measure, is a good predictor of single word recognition. This same rationale was used when designing the vocabulary test, the tool used to assess the students' ability to decode and thus comprehend the KGIS.

The third treatment, auditory administration, also hoped to alleviate reading problems associated with decoding. The main difference between this administration and the others is that it enables the reader to bypass the visual processing, and instead requires that the individual decode auditorally, thus reflecting the main difference between reading and listening. In the words of Buswell (1959, p. 103) the main difference is:

> Psychologically, the processes of speech and reading are quite similar, the difference being mainly in the sense avenues through which the verbal stimuli are received . . . . The essential difference between knowing how to read and how to understand oral speech is the substitution of visual perception of printed verbal symbols in the auditory impression of the same symbols when spoken. The thoughts expressed are the same, the vocabulary is the same and the word order is the same.

Logically, theorists such as Gibson would claim that this approach would be particularly beneficial to the individual whose cognitive style is predominantly auditory rather than visual. Other theorists claimed that the auditory approach is particularly helpful for the low reader. Huey, as early as 1908 (1908, p. 108, republished, 1968), proclaimed that

"The child comes to his first reader with his habits of spoken language fairly well formed and these habits grow more deeply set with every year." Huey eloquently expressed the opinion that listening is a prerequisite to reading. Developmentally, skill in learning by listening precedes and actually forms a basis for the acquisition of skill in learning by reading. Brown (1954), like Huey, believed listening to be a prerequisite to reading. He further conjectured that poor readers: (1) prefer to learn prose materials by listening rather than by reading, (2) actually learn materials better with the reading demands removed, and (3) rely more on listening than reading for obtaining job related information.

Sticht (1972) conducted a survey to examine relationships of reading ability to preference for learning by listening. In this survey, some 400 men in five classes of three Army training courses were tested for reading ability (Survey Reading Achievement, Junior High Level, California Test Bureau). The men were asked the question: "In learning a lesson, would you rather hear it from a tape recorder or read it from a book?" Clearly, reduced ability to read led to a greater preference for learning by listening rather than reading. Though there is an indication that poor readers prefer to learn by listening rather than by reading, the question still remains as to

whether or not they actually learn better by listening rather than by reading.

Innumerable studies have compared the effectiveness of written and oral instruction. There are a number of excellent summaries of this research. No useful purpose would be served by still another one. Therefore, this discussion is confined to a few brief comments on these reviews. Excellent reviews of the literature can be found in the introduction to doctoral theses by Carver in 1934, Krawiec in 1945, and Hampleman in 1955. Day and Beach (1950) made a very fine analysis of 35 studies. Generally, they reported that half the studies favored written instruction and half favored oral instruction. Explanations for the seeming conflict may be found in the following generalizations:

1. A combination of visual and auditory presentations of material lead to more efficient comprehension than either an auditory or a visual presentation of materials. This generalization is supported by a more recent work of Edgar Dale (1969, p. 50) who wrote:

> With the aid of audio-visual materials, which can be especially helpful for meeting the needs of learners at varying levels of ability, the direct, precise quality of a film, recording, or a scale model can convey significant information to certain pupils who may be less proficient than others in reading skills.

2. Comprehension is possible using either the

visual or the auditory mode. Variations in degree of comprehension may be accounted for by factors such as individual differences in experience, ability, and cognitive style.

Individual Differences in Cognitive Style

Provided in this section is a discussion of individual cognitive styles and their effects on the manner in which one selects, perceives, and organizes graphic information for meaning. Though this topic is not the focus of this study, a discussion attempts to explain and substantiate possible findings of this study.

Cognitive style can be defined as the way an individual acts, reacts, and adapts to the environment. This action, reaction, and adaptation can be mapped well enough to provide insight into an individual's behavior (Hill, 1969; Kuchinskas, 1974). This term is often used synonymously with learning style, teaching style, and so on. Cognitive style is not a new term. Over 40 years ago, Allport (1937) referred to a style of living and adapting influenced by distinctive personality types--in fact, he coined the term "cognitive style." This distinctive typical behavior mode is consistent and comparatively stable over time (Satterly and Brimes, 1971).

Based on observations and experimental studies

conducted since 1967, it has become apparent that regardless of age, ability, socioeconomic status, or achievement levels, individuals respond uniquely to their immediate environments (Dunn & Dunn, 1968). A number of studies have focused on different dimensions of cognitive style. Analyses of overt behavior indicated that some individuals operate best in concrete situations, while others operate best in abstract situations. Some individuals have an ordering preference, while others demonstrate nonsequential ordering preference. Some use both. Some people process best through deduction while others use induction. Dimensions such as perceptual style and conceptual tempo have been investigated and have appeared to be related to reading achievement. One dimension particularly relevant to this study in that it appears to affect reading comprehension, is the sensory style. An individual that is a sensory specialist is one who primarily relies on one sense for the meaningful formation of ideas. While the other senses are intact and functioning, one sense tends to predominate. Among these learners, the most commonly identifiable styles are the visual and auditory specialists. As the labels imply, visual learners gain much more from seeing or reading about the concept to be learned while the auditory learner needs oral explanations, recordings, or lectures.

The sensory specialist style of learning has been recognized by various educators. Russell and Fea (1963, p. 47), for example, state that, "Children are visually, auditorially, or kinesthetically oriented concerning their ability to learn."

Years ago, researchers tested only for visual or auditory preferences. At that time, it was thought that approximately half of our population learned through one sense and the other half learned through the other. During the last few years, however, Dunn and Dunn (1979) claim that only between 20-30% of school age youngsters appear to be auditory; that is, they learn and remember best what they hear. Approximately 40% are visual, with the remaining 30-40% being either tactual/kinesthetic, visual/tactual, or some combination of these four senses.

The research that Dunn and Dunn (1979) have reviewed and conducted has generally revealed that when taught through methods that complemented their learning characteristics, students at all levels became increasingly motivated and achieved better academically. Thus, the benefits of supplementing the KGIS with additional aids and devices (in this study the glossary and cassette tapes) may be invaluable. Not only may these devices increase one's chances to comprehend the KGIS, but even more

important, the interest inventory once understood will be more effective in aiding one's career exploration.

Summary

The review of the literature indicated a need for research and development on the effects of alternate modes of interest inventory administration and reading levels of students on the comprehension of interest inventories. Since no prior research on this topic was found, the rationale of the study was presented and organized in a developmental sequence upon which the theoretical and experimental framework rests. It included a review of the literature on the following topics: (1) the role of interest inventories in career development, (2) readability of interest inventories, (3) reading comprehension, (4) alternate presentations and their effects on comprehension, and (5) individual differences in cognitive style.

The first section, the role of interest inventories, provided a background of the problem, thereby establishing support for the purpose of the present study. The research was inconclusive as to the predictive value of interest measurement. More recent research, however, has stressed its usefulness in stimulating career exploration and thereby providing information which would help the clients identify occupational alternatives.

The research on the readability of interest inventory is limited; most studies were conducted in the late 1940's and early 1950's. This earlier research focused on the readability of interest inventories, recognizing the language difficulty of most of the then available interest inventories for a younger population. The two later studies, on the readability of the KGIS, provided conflicting data on the appropriateness of the KGIS for sixth grade students. The inconclusive evidence on its appropriateness thus indicates a need for more research to determine the appropriateness of the KGIS with sixth grade students.

The research, focusing on reading comprehension, was deemed necessary to explain and support a basic assumption of this study that reading comprehension is necessary for interest inventories to be valid instruments. Presented in this section was research focusing on the processes and skills of reading. The research on reading processes indicated that the focus should not necessarily be on whether reading comprehension is primarily an auditory process, visual process, or both, but on the individual reader and his/her predominant learning style. The section on skills outlined the basic skills necessary to comprehend the written word: decoding/word perception, literal comprehension, higher level comprehension skills and reactions, and assimilation.

The fourth section on alternate presentations and their effects on comprehension described the purpose and justification of each of the various treatments by citing research supporting the enhancement of comprehension when using additional aids and devices, such as cassette tapes and glossaries, as accompaniments to reading.

The purpose of the last section was to review the literature conducted on the effects of individual cognitive style and how one selects, perceives, and organizes graphic information for meaning. Though cognitive style was not a factor investigated in this study, it is nonetheless a factor that should be considered when investigating ways to enhance one's comprehension. The research revealed that students, when taught with methods that complemented their learning style, became increasingly motivated and achieved better academically. Thus, the benefits of supplementing the KGIS with auditory cassette tapes can be invaluable in enhancing one's comprehension of the KGIS. Whether one's learning style is predominantly auditory or visual, it is complemented by this aid.

Chapter 3

METHODOLOGY

The present investigation was designed to generate data which would assist in determining the effects on comprehension of the KGIS of alternate modes of administration of the KGIS and reading levels of eighth grade students of a five-year high school in Southern California. The efficacy of the program was assessed by differences in scores on the self-designed vocabulary test of the KGIS under different forms of administration.

Research Design

The following null hypotheses were tested:

1. There is no statistically significant difference in the comprehension of the KGIS, as determined from the self-designed vocabulary test scores, between the three treatment groups: standard administration, administration with glossary, and auditory administration.

2. The eighth graders' reading levels, determined from the CTBS vocabulary tests, have no statistically significant effect on their comprehension of the KGIS, as measured by the self-designed vocabulary test scores.

3. The mode of administration of the KGIS--either standard administration, administration with glossary, or auditory administration--has no statistically significant effect on the eighth graders' comprehension of it as measured by the self-designed vocabulary test scores.

4. The eighth graders' reading levels, as determined from the CTBS vocabulary tests, and the mode of administration of the KGIS--either standard administration, administration with glossary, or auditory administration--have no statistically significant effect on the eighth graders' comprehension of the KGIS as measured by the self-designed vocabulary test scores.

5. There is no statistically significant relationship between the eighth graders' comprehension of the KGIS, as measured by the self-designed vocabulary test scores, and their reading levels as determined from the CTBS vocabulary tests.

Subjects

One hundred fifty-three eighth graders, consisting of 77 males and 76 females, and ranging in ages from 13 to 15 years participated in the study. They were selected primarily because of the availability of their vocabulary test scores from the Comprehensive Tests of Basic Skills (CTBS) taken in May of 1978. All attended a five-year

high school in Southern California during the 1978-79 academic year.

The students attending this high school were generally from middle socioeconomic families; few lived in poverty, and few came from families of great wealth. All were part of a comprehensive career exploratory program designed to help provide the teen-ager with a foundation for making important decisions. The interest inventory was one part of the program typically introduced to eighth graders for interest and career exploration in this particular high school.

Treatment Procedures

Each student was randomly assigned, using the Table of Random Numbers, to one of the three treatment groups: (1) standard administration, (2) administration with glossary, and (3) auditory administration. A description of each treatment procedure follows:

1. Standard Administration: A group, consisting of approximately 15 to 20 students were administered the KGIS in a single session in the traditional manner: survey booklet, pin and corrugated paper were distributed to each; the directions (Appendix A) were read to the group; and then each student silently read the contents of the inventory and completed it in the manner directed.

Following the completion and collection of the interest inventories, each student was given the self-designed vocabulary test (Appendix F).

2. Administration with Glossary: A group, consisting of approximately 15 to 20 students were administered the KGIS (Appendix A) in a single session in the traditional manner with one modification--the instruction and use of a glossary (Appendices B and C) designed to aid in comprehension. Following completion and collection of the interest inventories and glossaries, each student was given the self-designed vocabulary test (Appendix F).

3. Auditory Administration: Refers to the administration of the KGIS through use of cassette tapes and tape recorders. The survey booklet, pin, corrugated paper, cassette tapes, and tape recorder were distributed to each student. The cassette tape contained the directions and contents of the inventory (Appendix D). Each was asked to listen to the tape while reading the inventory silently. Following the completion and collection of the inventories and tapes, the self-designed vocabulary test and cassette tape containing directions and contents of the vocabulary test were distributed to each for completion (Appendices E and F).

Before exposure to their assigned treatments, the

following data was gathered for each subject: (1) last name and first, (2) chronological age as of January 1, 1979, (3) sex, and (4) reading level, determined from the CTBS vocabulary tests taken in May of 1978. Upon completion and correction of the self-designed vocabulary tests, raw and percentage scores were listed next to the subject's name.

Description of Instruments

The following instruments were used in the investigation:

1. Kuder General Interest Survey, KGIS, Form E. This inventory was a revision and downward extension of the Kuder Preference Record, Vocational, and was developed in response to a need for an instrument for use with younger people, particularly at the junior high school level. It was designed to assess occupational interest through differential scoring in a small number of broad areas rather than in specific occupations. The interest areas consisted of the following: Outdoor, Mechanical, Computational, Scientific, Persuasive, Artistic, Literary, Musical, Social Service, and Clerical. The KGIS is forced-choice in format and consists of 168 items in which a student compares each of the three activities presented to him with the other two, ranking them as first, second, and

third, even though all three may seem equally attractive or unattractive. A profile for each subject is constructed which reflects the intensity of his/her preferences with respect to the appropriate norm group determined by the age of the subject. For example, a high school senior boy with a percentile score of 90 on the Mechanical scale on twelfth grade norms for boys has indicated a preference for mechanical activities more frequently than 90 percent of the boys in the norm group. Validity and reliability data are included in the manual which accompanies the inventory (Kuder, 1971).

2. Comprehensive Tests of Basic Skills, Expanded Edition, Form S, CTBS (Manual for the CTB, 1974). This test is often administered to all students as part of a state or district mandated testing program. Form S is a revision and expansion of Forms Q and R. The entire test battery contains seven tests: reading, language, math, reference, science, social science. Reading has two subtests, vocabulary and comprehension. In this study, only the vocabulary test scores rather than the combination comprehension and vocabulary scores were used to indicate the reading level of each subject. Reliability and content validity data are included in the manual.

3. Self-Designed Vocabulary Test (Appendix E). An assessment of subjects' knowledge and understanding

of the vocabulary used in the KGIS. The test contained 50 items and was multiple choice in format. The subjects were asked to circle the word that best described the underlined word in each phrase. The construction of the test was based on the assumption that if they understood the meaning of the word within the context of the phrase, then they were capable of comprehending the phrases of the KGIS, since the 50 phrases were randomly selected from the KGIS, using the Table of Random Numbers. The words selected for the vocabulary test were the most difficult ones in each of the phrases. The assessment of difficult words was determined by Thorndike's 1972 Junior Century Dictionary, which numerically rates the frequency of each defined word. These numbers range from one to 20, presenting the first 20 successive thousands of words most commonly used in the English language. Only words above the most frequently used 4,000 words were given a weight in this study. Any word having a weight of four or above was considered a difficult word and its weight was listed. Support for this approach--frequency as a factor influencing word recognition and consequently word meaning--is presented in Chapter 2. The word rated most difficult within each phrase was used in most cases as the vocabulary word tested, unless it had been previously used. If a difficult word was not represented within the phrase, the

phrase was still used and a word was randomly selected using the Table of Random Numbers. The multiple choice items were also evaluated and selected on the basis of difficulty; the items needed to be simple enough (weight below four) so that most could recognize the four options, so as not to detract from the purpose of the test. No specific reliability or validity studies have been made on this test. However, the test was piloted once with approximately 30 eighth graders whose reading levels ranged from third to fifth grade. As a result of the oral administration of the test with these students, it was revised and used as the final draft.

4. Glossary (Appendix C). The glossary used in this investigation was designed to aid the students' comprehension of the KGIS. It contained 101 words used in the KGIS arranged in alphabetical order; words were selected from the KGIS on basis of level of difficulty. Those with a weight of four and above, as determined by Thorndike's 1942 Junior Century Dictionary, were included within the glossary. The definition following each word defined the word as in the context of each phrase of the KGIS. The language of the definitions was also kept to a simple level of difficulty so as not to deter one's understanding of the contents of the glossary. By chance, it happened that 15 words from the glossary were on the

self-designed vocabulary test.

Statistical Treatment of Data

As a preliminary measure to determine whether further statistical measures needed to be done to make similar sample groups, a one-way analysis of variance (ANOVA) was calculated; its purpose was to ensure that the distribution of reading levels was similar in all three treatment groups. The same procedure was also used to determine whether the comprehension of the KGIS, determined from the self-designed vocabulary test scores, differed significantly among the three treatment groups.

Following these procedures, a two-factor ANOVA in a three-by-two factorial design was constructed to determine whether mode of inventory administration and eighth graders' reading levels, and the interaction of the two, had a significant effect on the comprehension of the KGIS. Each eighth grader was randomly assigned to one of the three treatment groups: standard administration, administration with glossary, and auditory administration. The reading levels of each of the students were then examined. Their reading levels, determined from the CTBS vocabulary test, ranged from 2.0-12.9, with the median score of 8.32. Using 8.32 as the criteria, each treatment group was further divided into two groups of

high and low readers. Thus, six groups were constructed for the purpose of comparison: (1) high readers of Treatment I, (2) low readers of Treatment I, (3) high readers of Treatment II, (4) low readers of Treatment II, (5) high readers of Treatment III, and (6) low readers of Treatment III. The groups consisted of the following number of students respectively: 26, 26, 26, 25, 25, 25. To add further insight to these results, a Pearson Product Moment Correlation Coefficient was calculated to determine whether there was a statistically significant relationship between the eighth graders' comprehension of the KGIS and their reading levels.

Methodological Assumptions

The following assumptions were made in this study:

1. The methods, selection of subjects, and data processing techniques used in this study were appropriate to the intent of the investigation.

2. The reliability and validity of the KGIS and CTBS were of a type and degree appropriate to the purposes of the investigation.

3. The subjects, randomly selected for the study, were representative of eighth graders seeking vocation help.

4. Data were accurately gathered, recorded,

stored, and analyzed.

5. The cassette tapes met the qualitative criteria necessary to ensure proper and clear administration of the KGIS and self-designed vocabulary test.

6. If one understood the meaning of the words in the self-designed test and received a score of 70% or above, it was assumed that he/she understood the contents of the KGIS.

7. Students responded to the best of their ability.

8. The administration of the KGIS did not bias results.

9. The dependent measures were reliable and valid.

Limitations of the Study

Limitations which may have affected the generalizability of the results of the study included:

1. The subjects used in the study were representative only of the limited population from which they were sampled.

2. The reliability and validity of the self-designed vocabulary test as a measure of comprehension of the KGIS have not been established.

3. True randomness in sampling was curtailed by

the constraints involved in the use of one high school.

4. Although a total number of 153 subjects was sufficient for the analysis procedures utilized in the investigation, a larger sample would have increased the strength of conclusions from the analysis.

5. Undiagnosed hearing difficulties were not controlled for in assignment of subjects to treatment groups.

Summary

The investigation was designed to generate data which would assist in determining the effects on comprehension of the KGIS, of alternate modes of administration of the KGIS, and reading levels of the eighth graders.

The KGIS was administered three different ways to 153 students. Comprehension of the KGIS was compared among the three groups assessed by a one-way ANOVA. Other differences were assessed using a two-factor ANOVA. The Pearson Product Moment Correlation Coefficient was calculated to assess the relationship between comprehension of the KGIS and reading levels of eighth graders.

Data were analyzed through examination of statistics generated by appropriate computer programs. Interpretation of the results was carried out in terms of the methodological assumptions, limitations and delimitations

specified in the investigation as being relevant to the hypotheses examined in the study.

Chapter 4

PRESENTATION OF RESULTS

Results of the one-way analysis of variance measuring the differences in reading levels of the 153 eighth graders in the three treatment groups are summarized in Table 1. Results of the one-way analysis of variance measuring the differences in comprehension of the KGIS, determined from the self-designed vocabulary test scores of the 153 eighth graders in each of the three treatment groups, are summarized in Table 2. Results of the two-factor analysis of variance measuring the effects of the eighth graders' reading levels on comprehension of the KGIS, and mode of administration on comprehension of the KGIS, and the interaction of the two on comprehension of the KGIS, may be found in Table 3. Results of the Pearson Product-Moment Correlation Coefficient measuring the overall relationship between the eighth graders' reading levels and comprehension of the KGIS may be found in Table 4.

Differences in Reading Level among the Three Groups

As a preliminary measure to determine whether

further statistical measures needed to be calculated to make similar sample groups, a one-way analysis of variance was calculated; its purpose was to ensure that the distribution of reading levels was similar in all three treatment groups. As indicated in Table 1, the F-ratio was 0.4472, statistically not significant, indicating that there were no statistically significant differences in the reading levels among the three treatment groups.

Table 1

Reading Levels (CTBS Scores) by Treatment Groups

Source of Variation	df	Sum of Squares	Mean Square	F ratio
Between (Treatments)	2	5.0141	2.5070	0.4472
Within (Error)	150	840.8663	5.6057	
Total	152	845.8804		

Group	n	M	Standard Deviation
Treatment I	52	8.1788	2.3624
Treatment II	51	8.0686	2.5005
Treatment III	50	8.4980	2.2292

Differences in Comprehension among the Three Treatment Groups

Table 2 reports the results of differences in comprehension of the KGIS determined from the self-designed vocabulary test scores among the three treatment groups in response to the null hypothesis--there is no statistically significant difference in the comprehension of the KGIS, as determined from the self-designed vocabulary test scores, among the three treatment groups. The F-ratio obtained was 1.5273, statistically not significant, indicating that the null hypothesis was accepted. Thus, within the limitations, delimitations, and assumptions specified in this investigation, there were no demonstrable differences in the eighth graders' comprehension of the KGIS participating in each of the three treatment groups.

Interaction Effects of Reading Level and Treatment Mode on Comprehension

Table 3 reports the differential effects of reading level on comprehension of the KGIS in response to the null hypothesis--the eighth graders' reading levels, determined from the CTBS vocabulary tests, have no statistically significant effect on their comprehension of the KGIS, as measured by the self-designed vocabulary test scores. The F-ratio obtained was 62.5301, statistically significant at the .01 level of confidence, indicating that the null

Table 2

Comprehension (Vocabulary Test Scores) by Treatment Groups

Source of Variation	df	Sum of Squares	Mean Square	F ratio
Between (Treatments)	2	131.3319	65.6659	1.5273
Within (Error)	150	6448.8772	42.9925	
Total	152	6580.2091		

Group	n	M	Standard Deviation
Treatment I	52	36.9807	6.4244
Treatment II	51	36.7647	7.9613
Treatment III	50	38.8400	4.8963

Table 3

Interaction Effects of Reading Level and Treatment Mode

Source of Variance	df	Sum of Squares	Mean Square	F ratio
F1 Reading Level	1	1890.2231	1890.2231	62.5301*
F2 Treatment Effect	2	112.7926	56.3963	1.8656
Between	2	162.7587	81.3793	2.6920
Within	145	4383.2008	30.2289	
Total	150	6548.9752		

*Significant at .01 level

hypothesis was rejected. Thus, it was found that reading level had a statistically significant differential effect on the eighth graders' comprehension of the KGIS; high reading levels and low reading levels affected comprehension of the KGIS differently.

Table 3 also reports the differential effects of treatment mode on the comprehension of the KGIS in response to the null hypothesis--the mode of administration of the KGIS--either standard administration, administration with glossary, or auditory administration--has no statistically significant effect on the eighth graders' comprehension of it as measured by the self-designed vocabulary test scores.

The F-ratio obtained was 1.8656, statistically not significant, indicating that the null hypothesis was accepted. Thus, it was found that the treatment mode had no statistically significant differential effect on the eighth graders' comprehension of the KGIS; the treatment modes affected comprehension equally.

Analysis of possible differential effects of treatment mode for dichotomized reading levels for the investigation in response to the null hypothesis--the eighth graders' reading levels, as determined from the CTBS vocabulary tests, and the mode of administration of the KGIS have no statistically significant effect on the eighth graders' comprehension of the KGIS as measured by the self-designed vocabulary test scores--is reported in Table 3. The F-ratio obtained was 2.6920, statistically not significant, indicating that the null hypothesis was accepted. Thus, mode of administration had no statistically differential effects on comprehension of the KGIS as measured by the vocabulary test scores for the high readers and low readers.

Relationship between Comprehension and Reading Level

Table 4 reports the results of the relationship between comprehension of the KGIS and reading level in response to the null hypothesis--there is no statistically

significant relationship between the eighth graders' comprehension of the KGIS, as measured by the self-designed vocabulary test scores, and their reading levels as determined from the CTBS vocabulary tests. As indicated, there was a statistically significant ($p < .01$) positive relationship between reading level and comprehension of the KGIS. Thus, it can be concluded that comprehension of the KGIS did increase as reading levels increased.

Table 4

Relationship of Reading Level and Comprehension

	m	s.d.	df	r	P
Reading Level	8.2464	2.3590	151	0.6691	$p < .01$
Comprehension	37.2869	7.1174			

Summary

Within the framework of the five major questions posed in relation to the corresponding null hypotheses, the findings may be summarized as follows:

1. A non-statistically significant F-ratio was obtained for the differences in comprehension of the KGIS among the three treatment groups.

2. A statistically significant (.01 level) F-ratio

was obtained for the effect of reading level on the comprehension of the KGIS.

3. A non-statistically significant F-ratio was obtained for the effect of treatment mode on the comprehension of the KGIS.

4. A non-statistically significant F-ratio was obtained for the interaction effects of reading level and treatment mode on the comprehension of the KGIS.

5. A statistically significant (.01 level) correlation coefficient was obtained for the relationship between reading level and comprehension of the KGIS.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

High school counselors have been increasingly aware of their responsibility in preparing individuals for a lifetime of career decision-making. Many have become actively involved in designing career guidance programs to assist the individual in career decision-making. An instrument commonly used in these programs to aid career exploration is the interest inventory. It is usually assumed that the inventory user understands the language. Unfortunately, this has not always been true, especially for younger students and those with low reading levels. The review of the literature has indicated that no attempts have been made to improve the existing inventories to make them more understandable. The development and evaluation of alternate modes of inventory administration might improve the quality of existing career guidance programs as well as minimize costs, especially in a time of rising costs of educational services. The purpose of the study was to determine the effects of alternate modes of administration of the KGIS and reading levels of the eighth grade

students on the comprehension of the KGIS. To determine the different scores of comprehension of the KGIS, the KGIS was administered in three different modes: standard administration, administration with glossary, and auditory administration to 153 eighth graders. The results indicated that treatment mode did not appear to affect the students' comprehension of the KGIS, but the students' reading levels did.

Problem

This study was designed to determine the effects on comprehension of the KGIS of alternate modes of administration of the KGIS and reading levels of the eighth grade students. The following questions were asked?

1. To what extent did comprehension of the KGIS, as measured by the self-designed vocabulary test scores, differ among the three treatment groups: standard administration, administration with glossary, and auditory administration?

2. To what extent did the eighth graders' reading levels, determined from the California Tests of Basic Skills (CTBS) vocabulary tests, affect their comprehension of the KGIS, as measured by the self-designed vocabulary test scores?

3. To what extent did the mode of administration of the KGIS--either standard administration, administration with glossary, or auditory administration--affect the eighth graders' comprehension of it, as measured by the self-designed vocabulary test scores?

4. To what extent did the mode of administration--either standard administration, administration with glossary, or auditory administration--and the eighth graders' reading levels, determined from the CTBS vocabulary tests, affect their comprehension of the KGIS as measured by the self-designed vocabulary test scores?

5. Was there a significant relationship between the eighth graders' reading levels, determined from the CTBS vocabulary tests, and comprehension of the KGIS, as measured by the self-designed vocabulary test scores?

Conceptual and Experimental Background

The review of the literature indicated a need for research and development on the effects of alternate modes of interest inventory administration and reading levels of students on the comprehension of interest inventories. Since no prior research on this topic was found, the rationale of the study was presented and organized in a developmental sequence upon which the theoretical and experimental framework rests. It included a review of the

literature on the following topics: (1) the role of interest inventories in career development, (2) readability of interest inventories, (3) reading comprehension, (4) alternate presentations and their effects on comprehension, and (5) individual differences in cognitive style.

The first section, the role of interest inventories, provided a background of the problem, thereby establishing support for the purpose of the present study. The research was inconclusive as to the predictive value of interest measurement. More recent research, however, stressed its usefulness in stimulating career exploration and thereby provided information which would help the clients identify occupational alternatives.

The research on the readability of interest inventories was limited; most studies were conducted in the late 1940's and early 1950's. This earlier research focused on the readability of interest inventories, recognizing the language difficulty of most of the then available interest inventories for a younger population. The two later studies, on the readability of the KGIS, provided conflicting data on the appropriateness of the KGIS for sixth grade students. The inconclusive evidence on its appropriateness thus indicated a need for more research to determine the appropriateness of the KGIS with sixth grade students.

The research, focusing on reading comprehension, was deemed necessary to explain and support a basic assumption of this study--that reading comprehension is necessary for interest inventories to be valid instruments. Presented in this section was research focusing on the processes and skills of reading. The research on reading processes indicated that the focus should not necessarily be on whether reading comprehension is primarily an auditory process, visual process, or both, but on the individual reader and his/her predominant learning style. The section on skills outlined the basic skills necessary to comprehend the written word: decoding/word perception, literal comprehension, higher level comprehension skills and reactions, and assimilation.

The fourth section on alternate presentations and their effects on comprehension described the purpose and justification of each of the various treatments by citing research supporting the enhancement of comprehension when using additional aids and devices, such as cassette tapes and glossaries, as accompaniments to reading.

The purpose of the last section was to review the literature conducted on the effects of individual cognitive style on how one selects, perceives, and organizes graphic information for meaning. Though cognitive style was not a factor investigated in this study, it is nonetheless a

a factor that should be considered when investigating ways to enhance one's comprehension. The research revealed that students, when taught with methods that complemented their learning style, became increasingly motivated and achieved better academically. Thus, the benefits of supplementing the KGIS with auditory cassette tapes can be invaluable in enhancing one's comprehension of the KGIS. Whether one's learning style is predominantly auditory or visual, it is complemented by this aid.

Methodology

The KGIS was administered in three different modes: standard administration, administration with glossary, and auditory administration. One hundred fifty-three eighth graders were randomly assigned to one of the three treatment groups, administered the inventory in the assigned mode, and then tested for comprehension of it using a self-designed vocabulary test specifically designed for that purpose. The different scores of comprehension of the KGIS were compared to assess the similarity among the three treatment groups. The differential effect of reading level on comprehension of the KGIS was assessed to determine whether high and low reading levels affected comprehension of the KGIS similarly. The differential effect of treatment mode on comprehension of the KGIS was assessed to determine whether treatment modes affected

comprehension of the KGIS equally. The differential effects of treatment mode for dichotomized reading levels on comprehension of the KGIS was assessed. Data were analyzed through the use of one-way analysis of variance, two-factor analysis of variance, and a Pearson Product-Moment Correlation Coefficient.

Findings

Within the framework of the five major questions posed in relation to the corresponding null hypotheses, the findings may be summarized as follows:

1. A non-statistically significant F-ratio was obtained for the differences in comprehension of the KGIS among the three treatment groups.

2. A statistically significant (.01 level) F-ratio was obtained for the effect of reading level on the comprehension of the KGIS.

3. A non-statistically significant F-ratio was obtained for the effect of treatment mode on the comprehension of the KGIS.

4. A non-statistically significant F-ratio was obtained for the interaction effects of reading level and treatment mode on the comprehension of the KGIS.

5. A statistically significant (.01 level) correlation coefficient was obtained for the relationship between reading level and comprehension of the KGIS.

Conclusions and Discussion

An evaluation of the findings in light of the assumptions, limitations, and delimitations of the study led to the following conclusions: Treatment mode did not appear to affect the students' comprehension of the KGIS but the students' reading levels did. The interaction of the two, however, did not have an effect on the students' comprehension of the KGIS. High readers performed better than low readers on the self-designed vocabulary test in all three treatment groups.

Following Roeber's recommendation (1948) of use of a glossary with reading materials containing difficult language, the glossary was constructed in this study to help the reader understand difficult concepts and terminology of the KGIS. Often interest inventories contain difficult terms that are associated with various jobs. It was felt that the glossary would be readily accessible for use when needed. The problem with such a device, however, is that it requires a subjective evaluation by the individual reader of his/her understanding of what was read; the glossary would be used only if the reader felt that he/she did not comprehend a word and/or phrase. Consequently, it was the impression of the investigator that many students who could have benefited from the glossary never used it. This was supported by my observations and

informal questioning after the administration when students were asked why they did not use the glossary. Many responded similarly with statements to the effect that "I understood what I was reading . . ," "I didn't feel I needed it."

Another factor which could have altered the results of this study was the difficulty in controlling the variables, motivation and interest. In all of the treatments, the common complaint sounded by the students was the length of the inventory; consequently, tired and impatient eighth graders with sore fingers from continued use of the pins were easily distracted from their tasks. In the second treatment, the length of the inventory may have been responsible for the students' limited use of the glossary. In the third treatment, the motivation and interest of many students waned, possibly due to the extended time of administration, which was magnified by the use of the cassette tapes; many students became impatient and wished to discontinue the use of the tapes.

Contrary to the work and comments of Day and Beach (1950) and Edgar Dale (1969), the combination of visual and auditory presentation of materials, as found in the third treatment mode, did not lead to more efficient and effective comprehension of the KGIS than either of the visual presentations found in the first and second

treatment modes. A possible drawback of recorded materials which could have affected the results, is that the listener's listening rate is determined by the oral reader's rate of speech. For low aptitude individuals (those with low auditory comprehension abilities), the message might be too fast, while for high aptitudes individuals, the faster rates might be preferable. Even though a balance was sought, it is still possible that stylistic preference could have affected the results.

Some research supporting the effectiveness of auditory presentation was based on the assumption that poor readers are able to profit more from aural presentations than good readers (Brown, 1954; Sticht, 1972). However, it is also possible that poor readers may also be poor listeners (Duker, 1965). This may explain why the poor readers did not perform as well as the high readers in this treatment mode as expected.

One last factor not controlled in this study but possibly influential in affecting the students' comprehension of the KGIS, could have been the differences in learning style preferences of the students taking the inventory in each of the treatment modes. The research conducted by Dunn and Dunn (1979) revealed that when taught with methods that complemented their learning style, students at all levels became increasingly motivated and achieved better

academically. Thus, the benefits of supplementing the KGIS with additional devices may be invaluable. An individual with a preference for visual learning might be better able to comprehend the KGIS when administered in the standard way or with a glossary. The individual with a preference for auditory learning might be better able to comprehend the KGIS when administered auditorially. Since the learning preferences of the students were not identified and the students were consequently assigned to a treatment mode without consideration of this variable, it is possible that the students' learning styles were incongruent with their assigned treatment modes.

Recommendations

Based on these results and conclusions, the following recommendations may be made:

1. A modified replication with a sample similar to the one used in this study can be undertaken. The major modification recommended would be the use of another interest inventory designed for the younger student and/or individual with low reading levels. This modification would permit further examination of the comparability of comprehension of the inventory among the three treatment modes.

2. In a similar study, attention could focus on

the students' preference for learning styles, and their influence in enhancing comprehension of interest inventories in the various treatment groups.

3. It is recommended that counselors become aware of the reading levels of the students in a group so that they can exercise more care in the selection and interpretation of interest inventories administered to them.

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APPENDIXES

APPENDIX A

TREATMENT I: STANDARD ADMINISTRATION DIRECTIONS

APPENDIX A

TREATMENT I: STANDARD ADMINISTRATION DIRECTIONS

Following are the directions used to present the standard administration of the KGIS:

Mr. LeGrue and I ask your help in choosing materials for the career center. We are looking for materials for you as eighth graders which will help you make decisions for yourself now, and in the future, whether it be for you when planning your program of study, or even a future job.

In order to make a good decision, it is necessary to acquire as much information about yourself, your interests, values, abilities, and needs, as well as information about jobs. Today you will be looking at your interests. One way of doing this is through taking an interest survey, one of which you have before you known as the Kuder General Interest Survey.

The Kuder General Interest Survey is exactly what its title suggests: a survey of your interests in a wide range of activities. It is not a test. There are no answers that are right or wrong for everyone. An answer is right if it is true for you.

If corrugated paper has been distributed to you, place it in the booklet just before the profile section, page 33.

On each page of this booklet you will see a list of things to do, in groups of three. First read the list of all three activities in a group. Decide which of the three you like most. In the answer section there are two circles on the same line as this activity--one in the column marked M for most and one in the column marked L for least. Using the pin provided, punch a hole through the left-hand circle following this activity. (Hold the pin straight up and down when you punch your answers.) Then decide which activity you like least, and punch a hold through the right-hand circle of the two circles following this activity.

In the examples before you, the person answering has indicated for the first group of three activities that he prefers the activity "visit a museum" most, and the activity "browse in a library" least. For the second group of three activities he has indicated he prefers the activity "collect signatures of famous people" most, and the activity "collect butterflies" least.

Please pretend that you can do all of the things listed, even those that require special training. Make your choices as if you were equally familiar with all of

the activities. Do not choose an activity just because it is new or different, or because you think others might consider it a good choice.

You may like all three activities in a group, or you may dislike all three. In either case, show what your choices would be if you had to choose. It is important that you answer all questions. For each group of activities, it is essential that you choose the activity most preferred and the activity least preferred.

Do not spend a great deal of time on any one group. Do not talk over the questions with anyone. Unless an answer represents what you think, it will not contribute to a helpful picture of your interests.

If you want to change an answer, punch two more holes close to the answer you wish to change; then punch the new answer in the usual way.

Start now and continue working until you have indicated your choices for all pages, columns 1 through 12.

Be sure to put your name, sex (F for female and M for male), age at your last birthday, grade, and today's date--month, day, and year--at the top of this page.

APPENDIX B

TREATMENT II: ADMINISTRATION WITH GLOSSARY

APPENDIX B

TREATMENT II: ADMINISTRATION WITH GLOSSARY

Following the directions of the administration of the KGIS, the following was read to the subjects of Treatment II:

A glossary has also been distributed to each of which you can use when needed to help you when you encounter words that you do not understand. The words are in alphabetical order; thus, the glossary is used in the same way as you would a dictionary. For example, if you were to encounter the word "ability" and not know its meaning, you would use the glossary to find its definition. The word "ability" begins with the letter "a," so look at the beginning of the glossary to find the words beginning with "a" and you will be able to find the word "ability." Following the word is its definition, "skill." Are there any questions before you begin?

APPENDIX C

GLOSSARY

APPENDIX C

GLOSSARY

1. Ability - Skill.
2. Advertisement - Public announcement; printed notice.
3. Advertising - To give public notice of; announce; call attention to.
4. Airplane - A flying machine that has one or more planes or wings and is driven by a motor.
5. Amusement - A condition of being amused. Anything that amuses; entertainment; sport.
6. Arithmetic - The science and art of numbers.
7. Arrangements - Plans; preparations.
8. Ashtray - A container for tobacco ashes.
9. Behave - Act.
10. Birdhouse - A small box made as a nesting place for birds.
11. Bookshop - A store where books are sold.
12. Cafeteria - Restaurant where people wait on themselves.
13. Chemical - Of chemistry.
14. Chemistry - Science that deals with features of simple substances, the changes that take place when they combine to form other substances, and the laws of their combination and behavior under various conditions.
15. Comments - A note or remark that explains, praises, or finds fault with a person, book, or thing.
16. Compose - Make up.
17. Decorate - Make beautiful; trim; adorn.
18. Details - Small or unimportant parts.

19. Development - Developing; gradual unfolding; creating; bringing or coming to light.

20. Dictate - Say or read aloud to another person or other persons who are to write what is said or read.

21. Director - Manager; person who directs.

22. Discuss - Talk over; consider from various points of view.

23. Discussion - Talk; going over the reasons for and against; discussing things.

24. Dishwasher - A machine that washes dishes.

25. Editorial - An article in a newspaper or magazine written by the editor or under his direction, giving the opinion or attitude of the paper upon some subject.

26. Electrical - Electric.

27. Electricity - Form of energy which can give certain metals the power to pull together or push apart from one another, and which can produce light and heat.

28. Equipment - Outfit; what one is equipped with; furnishings; supplies.

29. Evidence - Facts; proof; anything that shows or makes clear.

30. Expensive - Costly; high-priced.

31. Experiment - Try in order to find out; make trials or tests.

32. Expert - Person who has skill or who knows a great deal about some special thing.

33. Fair-minded - Just and fair in judgment.

34. Flowerpots - A pot in which plants are grown.

35. Greeting - The act or words of a person who greets somebody; welcome.

36. Groceries - Articles of food sold by a grocer.

37. Handicraft - A trade or art requiring skill with the hands.

38. Handwriting - Writing by hand; writing with pen, pencil; manner or style of writing.

39. Improvement - Making better; becoming better. Better condition; a gain; advance.

40. Insurance - Business of insuring property, life.
41. Intelligent - Having or showing understanding; able to learn or know.
42. Inventer - Person who invents.
43. Jewelry - Jewels.
44. Label - A slip of paper or other material attached to anything and marked to show what or whose it is, or where it is to go.
45. Laboratory - Place where scientific work is done.
46. Landscape - Land scene; a view of scenery on land.
47. Lecture - Speech; a planned talk on a chosen subject; such a talk written down or printed.
48. Loom - Machine for weaving cloth.
49. Magazine - A publication appearing weekly or monthly, containing stories and articles by different writers.
50. Mathematics - The study of number, measurement, and space.
51. Mechanical - Having to do with machinery; made by machinery.
52. Memorize - Commit to memory; learn by heart.
53. Mental - Of the mind; for the mind; done by the mind.
54. Mentally - With the mind; in the mind.
55. Metalworking - The art of shaping things out of metal.
56. Movie - Moving picture.
57. Opener - A person or thing that opens.
58. Orchestra - The musicians playing at a concert, an opera, or a play. Musical instruments played by the musicians together in an orchestra.
59. Organize - Put into working order; get together and arrange.
60. Painting - Picture; something painted.
61. Percent - Hundredth. For each hundred; in each hundred.

62. Physical - Of the body; as, physical exercise, physical strength, physical education.

63. Pioneer - Person who settles in a part of the country that has not been occupied before, except by savage tribes.

64. Planet - One of the heavenly bodies that move around the sun.

65. Playground - Piece of ground for play.

66. Politics - The managing of political affairs; the science and art of government.

67. Postage - Amount paid on anything sent by mail.

68. Puzzles - Hard problems.

69. Radio - Wireless telegraph or telephone; a way of sending and receiving words, music by electric waves without wires.

70. Ranch - A very large farm.

71. Recipe - Directions for preparing something to eat.

72. Recommendation - Anything that recommends a person or thing; words of advice or praise.

73. Recorder - Part of a machine that records.

74. Reference - Use for information or help.

75. Research - A careful hunting for facts or truth; inquiry; investigation.

76. Restaurant - Place to buy and eat a meal.

77. Sailboat - Boat that is moved by sails.

78. Salesmanship - Business of a salesman; ability at selling.

79. Scenery - General appearance of a place.

80. Scientific - Using the facts and laws of science.

81. Scientist - Person who knows much about science.

82. Scrapbook - Book in which pictures or clippings are pasted and kept.

83. Shelves - Thin flat pieces of wood, stone fastened to a wall or frame to hold things, such as books, dishes.

84. Shopwork - Place where things are made and repaired.

85. Signature - Person's name written by himself.

86. Supervise - Look after and direct; oversee, manage.

87. Switchboard - Apparatus containing a number of plugs by which numerous electrical circuits are made, broken, or combined.

88. Tank - Large container for liquid or gas.

89. Tape - A long, narrow strip of cloth, paper. Fasten with tape.

90. Tease - Annoy; vex or worry by jokes, questions, requests.

91. Television - A means for seeing objects at a distance by electricity.

92. Tennis - A game played by two or four players, in which a ball is driven back and forth over a net with rackets.

93. Timetable - A schedule showing the times when trains, boats, busses, or airplanes come and go.

94. Tour - Travel from place to place; short journey; walk around.

95. Tractor - Engine on wheels for pulling wagons, trucks, plows.

96. Treasurer - Person in charge of money.

97. Typewriter - Machine for making letters on paper.

98. Typewritten - Written with a typewriter.

99. Watercolors - Paint mixed with water instead of oil; painting with water colors; picture made with water colors.

100. Woodworking - Making things of wood.

101. Wrestling - Trying to throw or force an opponent to the ground; struggling.

APPENDIX D

TREATMENT III: AUDITORY ADMINISTRATION, SCRIPT USED WITH KGIS

APPENDIX D

TREATMENT III: AUDITORY ADMINISTRATION, SCRIPT USED WITH KGIS

Following is the script, taped for use with the subjects of Treatment III when taking the KGIS:

Mr. LeGrue and I ask your help in choosing materials for the career center. We are looking for materials for you, as eighth graders, which will help you make decisions for yourself now, and in the future, whether it be for you when planning your program of study or even a future job.

In order to make a good decision, it is necessary to acquire as much information about yourself, your interests, values, abilities, and needs, as well as information about jobs. Today you will be looking at your interests. One way of doing this is through taking an interest survey, one of which you have before you, known as the Kuder General Interest Survey.

The Kuder General Interest Survey is exactly what its title suggests: a survey of your interests in a wide range of activities. It is not a test. There are no answers that are right or wrong for everyone. An answer is right if it is true for you.

On the desk before you, you should have three items: the survey booklet, corrugated paper, and a pin. If you are missing one of these items, please stop the tape and get one from me.

Now please open the survey booklet to page 33, the page entitled "Profile Section." Once you have done this, place the corrugated paper on that page and then close the booklet. You should now have the closed booklet immediately in front of you.

Now open the booklet to the first page on which the directions are printed. On the top of this page is a section for your name, age, sex, group, and date. Please print the necessary information in the spaces provided. Your group number is three.

Now stop the tape to fill in the necessary information, and once that is complete, start the tape again and proceed to read the directions to yourself silently as I read them to you.

On each page of this booklet you will see a list of things to do in groups of three. First read the list of all three activities in a group. Decide which of the three you like most. In the answer section there are two circles on the same line as this activity, one in the column marked "M" for most, and one in the column marked "L" for least. Using the pin provided, punch a hole

through the left-hand circle following this activity. Hold the pin straight up and down when you punch your answers.

Now decide which activity you like least and punch a hole through the right-hand circle of the two circles following this activity.

If you look at the examples on this page, you will notice that the person answering has indicated for the first group of three activities a preference for the activity "visit a museum" most, and the activity "browse in a library" least. For the second group of three activities, the person has indicated a preference for the activity "collect signatures of famous people" most and the activity "collect butterflies" least.

Before you go on, if this is unclear to you, please stop the tape and raise your hand for further help.

Please pretend that you can do all of the things listed, even those that require special training. Make your choices as if you were equally familiar with all the activities. Do not choose an activity just because it is new or different, or because you think others might consider it a good choice.

You may like all three activities in a group, or you may dislike all three. In either case, show what your choices would be if you had to choose. It is important you answer all questions. For each group of activities,

it is essential that you choose the activity most preferred and the activity least preferred.

Do not spend a great deal of time on any one group. Do not talk over the questions with anyone. Unless an answer represents what you think, it will not contribute to a helpful picture of your interests.

If you want to change an answer, punch two more holes close to the answer you wish to change; then punch the new answer in the usual way.

Now turn to the next page and let's begin.

Which of the three phrases, a, b, or c, do you like the most?

Read a book to yourself.

Read a book to someone else.

Have someone read a book to you.

Use your pin to punch your choice for the most preferred activity in the column marked "M."

Which of these three phrases, a, b, or c, do you least prefer? Now punch your choice in the column marked "L."

Now let's continue in the same manner for the remainder of the test. (The remainder of the test, as printed in Appendix A, is auditorally administered using the format presented above.)

You have now completed the survey. Please close

your survey booklet, stop the tape, and bring the survey and tapes to me.

APPENDIX E

TREATMENT III: AUDITORY ADMINISTRATION, SCRIPT USED WITH VOCABULARY TEST

APPENDIX E

TREATMENT III: AUDITORY ADMINISTRATION, SCRIPT USED WITH VOCABULARY TEST

Following is the script, taped for use with the subjects of Treatment III when taking the vocabulary test:

You have now just been given a vocabulary test that will test your knowledge of the words used in the Kuder General Interest Survey to determine whether you actually understood what you were reading when taking it. This is a test. However, you will not receive a grade. The score that you receive will only be used to help us determine whether the survey is appropriate for eighth graders in helping you become more aware of your interests.

Before you start, please write the code number three and your name in the spaces provided in the right-hand corner. Please stop the tape to do so, and once completed, proceed again.

Again, please follow along and read silently to yourself as I read the directions and questions to you. If you need to stop the tape in order to complete a question, please feel free to, and then proceed as before.

The directions are to circle the word that best describes the underlined word in each phrase.

What is the best word to describe "typewriters" in the phrase: (1) Visit a factory where typewriters are made. Circle the best word. Toys? Boys? Machines? Materials?

The remainder of the test is presented auditorally in the same format as used above.

Now that you have completed the test, turn the tape off and bring the test and tapes to me. Thank you very much for your cooperation.

APPENDIX F

DIRECTIONS FOR USE OF VOCABULARY TEST

APPENDIX F

DIRECTIONS FOR USE OF VOCABULARY TEST

You have now just been given a vocabulary test that will test your knowledge of the words used in the Kuder General Interest Survey to determine whether you actually understood what you were reading when taking it. This is a test. However, you will not receive a grade. The score that you receive will only be used to help us determine whether the survey is appropriate for eighth graders in helping you become more aware of your interests.

Before you start, please write the code number (as directed) and your name in the spaces provided in the right-hand corner.

The directions are to circle the word that best describes the underlined words in each phrase.

Code Number _____

Name _____

VOCABULARY TEST

Directions: Circle the word that best describes the underlined word in each phrase.

1. Visit a factory where typewriters are made.

   (1) toys (3) machines
   (2) books (4) materials

2. Figure out the percent of people who choose each answer in opinion polls.

   (1) proportion (3) kind
   (2) number (4) group

3. Teach arithmetic.

   (1) science (3) numbers
   (2) division (4) addition

4. Type letters.

   (1) print (3) write
   (2) mail (4) send

5. Have many friends and a lot of money.

   (1) wealth (3) power
   (2) honor (4) luxury

6. Enter a typing contest.

   (1) struggle (3) contract
   (2) dispute (4) race

7. Earn part of your <u>expenses</u> in college by grading papers.

(1) dues (3) value
(2) experience (4) costs

8. Read about how famous scientists made their <u>discoveries</u>.

(1) judgments (3) opinions
(2) reports (4) findings

9. Try out different sails on a toy <u>sailboat</u> to see which works best.

(1) vessel (3) bail
(2) glider (4) car

10. Work at a weather <u>station</u> at the South Pole.

(1) hotel (3) house
(2) factory (4) building

11. Discover a sure <u>cure</u> for hay fever.

(1) remedy (3) case
(2) condition (4) cause

12. Draw <u>plans</u> for bridges.

(1) drafts (3) maps
(2) ideas (4) roads

13. Look after <u>sick</u> children.

(1) bad (3) diseased
(2) disturbed (4) well

14. Figure out how much it costs to produce the can <u>opener</u>.

(1) tool (3) knife
(2) kitchen (4) lid

15. <u>Enter</u> a singing contest.

(1) join (3) music
(2) hear (4) voices

16. Keep record books for a <u>scientist</u>.

(1) leader (3) secretary
(2) professor (4) student

17. Have <u>power</u>.

(1) honor (3) fame
(2) glory (4) authority

18. <u>Decorate</u> for the party.

(1) clean (3) celebrate
(2) design (4) purchase

19. Try out new automobiles to find out how they can be <u>improved</u>.

(1) sold (3) advanced
(2) altered (4) changed

20. Have people pay no <u>attention</u> to you.

(1) amount (3) notice
(2) sum (4) abuse

21. Have people tease you.

(1) test
(2) tempt
(3) vex
(4) question

22. Help a child with his spelling lesson.

(1) reading
(2) speech
(3) art
(4) word

23. Manage a well-planned village for factory workers.

(1) trained
(2) eager
(3) poor
(4) industry

24. Run a gift shop.

(1) book
(2) present
(3) flower
(4) dress

25. Have many friends and very little money.

(1) too
(2) extremely
(3) so
(4) never

26. Wait on people in a store.

(1) stay
(2) serve
(3) delay
(4) work

27. Work on the development of a new metal that is light and strong.

(1) creating
(2) growth
(3) advantage
(4) addition

28. Hear a talk on how to take pictures of <u>animals</u>.

(1) rocks (3) plants
(2) birds (4) art

29. Help poor families plan to use their money <u>wisely</u>.

(1) carefully (3) immediately
(2) slowly (4) intently

30. Design camp <u>equipment</u>.

(1) supplies (3) tents
(2) ax (4) pack

31. Read <u>about</u> music of long ago.

(1) of (3) above
(2) but (4) around

32. Join a club that <u>discusses</u> new books.

(1) considers (3) discovers
(2) reads (4) tries

33. Decide on the selling prices of the <u>greeting</u> cards.

(1) welcome (3) respect
(2) great (4) polite

34. <u>Visit</u> a place where poor people can go to have fun.

(1) go (3) make
(2) return (4) join

35. Work at a <u>weather</u> station in a city.

(1) climate (3) air
(2) wind (4) sky

36. Have people tell you what was wrong about a talk you made.

(1) weakness (3) evil
(2) sad (4) ill

37. Buy groceries for a meal.

(1) meat (3) spices
(2) napkins (4) food

38. Talk about as much as you listen.

(1) act (3) think
(2) read (4) hear

39. Repair a broken lock.

(1) fix (3) help
(2) assemble (4) aid

40. Buy and sell famous paintings.

(1) art (3) writings
(2) music (4) plays

41. Be told exactly how to do a job.

(1) correctly (3) directly
(2) briefly (4) differently

42. Read what some people think a perfect world would be like.

(1) happy (3) pleasant
(2) model (4) special

43. Read the news in a <u>newspaper</u> first.

(1) book (3) note
(2) letter (4) press

44. Make <u>studies</u> of how old people can keep happy.

(1) tests (3) notes
(2) reports (4) remarks

45. Write <u>stories</u> about birds.

(1) briefs (3) descriptions
(2) rumors (4) tales

46. Think what you'd do if you could have any three <u>wishes</u> come true.

(1) notions (3) desires
(2) ideas (4) thoughts

47. Draw pictures for <u>magazine</u> stories.

(1) published (3) special
(2) exciting (4) current

48. Ask people for money for a <u>charity</u> drive.

(1) safety (3) borrowing
(2) borrowing (4) advances

49. Read <u>reviews</u> of new books.

(1) remarks (3) parts
(2) titles (4) contents

50. Write <u>advertising</u> for washing machines.

(1) notices (3) reviews
(2) stories (4) description